

US patent application No. 09/361,734

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Title of the Invention: A method for creating multiphonic  
sound field

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Column 3, lines 2-23

According to the above-mentioned configuration, the left signal and the right signal of the stereophonic signal (the original signal) are respectively phase-shifted with the phase-shifters  $PM_{L1}$  and  $PM_{R1}$  and the shifted left and right signals are output from the speakers  $SP_{LF}$  and  $SP_{RF}$  which are respectively located at the front left side and the front right side with respect to the listener P. Simultaneously, the left signal and the right signal of the stereophonic signal are respectively phase-shifted with the phase-shifters  $PM_{L2}$  and  $PM_{R2}$  and the shifted left and right signals are output from the speakers  $SP_{LR}$  and  $SP_{RR}$  which are respectively located at the rear left side and the rear right side with respect to the listener P. Accordingly, random phase difference and random direction difference are produced between the sound waves from the speakers  $SP_{LR}$  and  $SP_{RR}$  and those from the speakers  $SP_{LF}$  and  $SP_{RF}$ . Such differences make the listener P to feel the presence as if a number of direct sound waves (i.e., the sound waves directly reaching the listener) and reflected sound waves do in a concert hall (described earlier). For example, the shift degrees of the phase shifters  $PM_{L1}$  and  $PM_{R1}$  are set equally, the left signal and the right signal of the stereophonic signal are equally phase-shifted and output from the speakers  $SP_{LF}$  and  $SP_{RF}$ . As a result, compared to prior art stereophonic reproduction, the superior presence can be obtained while keeping the normal localization feeling of the front signals, which is due to the relative relationship between the sound waves from the speakers  $SP_{LF}$  and  $SP_{RF}$  and those from the speakers  $SP_{LR}$  and  $SP_{RR}$ .